A comparison of the patterns formed by primary textile structures and their photographic abstraction

Pamela Perlman

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Thesis Proposal for the Master of Fine Arts Degree

College of Fine and Applied Arts
Rochester Institute of Technology

Title: A Comparison of the Patterns Formed by Primary Textile Structures and their Photographic Abstraction

Submitted by: Pamela Anne Perlman         Date: September 22, 1976

Thesis Committee: Mr. Donald Bujnowski
                  Mr. Max Lenderman
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Departmental Approval: ____________________________
Date: 09/25/76

Chairman of the School for American Craftsmen:

Date: 09/30/76

Chairman of the Graduate Program:

Date: 10/1/76

Final Committee Decision:

Date: ____________________________
Title: A Comparison of the Patterns Formed by Primary Textile Structures and their Photographic Abstraction

My concern in textiles is with structure and materials. I would like to do wall hangings based on primary textile structures such as knotting, looping, pile, balanced weaves, and tapestry. They will be done in textured fibers with high contrasts of negative and positive areas. These pieces will be photographed and (photographically) silkscreened onto commercial or handwoven fabrics. The printing will involve dyeing, distortion of repeats, and painting. The pieces will be hung as a series of two causing a comparison between the patterns formed by the techniques and materials of the original pieces and their abstraction in the second.

The written thesis will be a developed statement of ideas, research and documentation of techniques and materials, and bibliography.
ROCHESTER INSTITUTE OF TECHNOLOGY

A COMPARISON OF THE PATTERNS FORMED BY PRIMARY TEXTILE STRUCTURES AND THEIR (PHOTOGRAPHICALLY) PRINTED ABSTRACTIONS

A THESIS SUBMITTED TO THE FACULTY OF THE COLLEGE OF FINE AND APPLIED ARTS IN CANDIDACY FOR THE DEGREE OF MASTER OF FINE ARTS

DEPARTMENT OF WEAVING AND TEXTILE DESIGN

BY

PAMELA ANNE PERLMAN

ROCHESTER, NEW YORK

APRIL, 1977

Approval 5/20/1977
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Acknowledgments

My graduate studies over the last three years encompasses intensive work in textiles; fiber analysis, structures of fabrics, dyes, printing techniques and figure drawing, painting and photography. My thesis is the culmination of this work. It was not my aim to reproduce historical textile structures nor exact photographic likenesses, but rather to extract from these mediums the means to create a body of work that dealt with the abstraction and comparison of materials and processes.

I am sincerely thankful for the individuals on the Rochester Institute of Technology's College of Fine and Applied Arts faculty who encouraged me in this direction; my three advisors, Mr. Donald Bujnowski and Mr. Max Lenderman in the Textile Department and Mr. Ed Miller in the Painting Department. I would also like to thank Mr. Fred Lipp in the Painting Department, Miss Kathy Collins in the School of Photography and Mr. Dan Levine in the School of Printing.
Introduction

This thesis work is two fold. The first part is a concern with the primary structure of a fabric (the way that the cloth is put together), the materials chosen for the piece and as a result of these two, the tactile effects evoked. Each fiber has a different grain, gloss, smoothness, roughness and size. These qualities of fiber plus the structure of the cloth are the elements a weaver exploits to achieve nap and tactile sensibility; a desire to feel the cloth between the thumb and fingers and to run the palm over the surface. Through the usage of many different fibers in various cloth constructions I have come to think of the surface characteristics, the tactile sense, as means fully expressive as line and color.

The second part of my thesis work is the desire to capture the tactile sense peculiar to a piece and isolate it, disregarding all I considered non-essential to the work, i.e. color, length by width dimensions, etc., photograph this characteristic and silkscreen the image onto cloth. I wanted to work with the original image in a new medium; I wanted to explore the potential of textile dyes and inks.

I did three fiber pieces based on an interplay of the fabric structures and materials chosen; a handspun/felt tapestry, a plain woven piece of cloth and wood structures covered with polyethylene. The fourth piece was a drawing. I photographed the essence, that which spoke of the surface characteristics, and printed the image onto silk cloth. I used either line or halftone photography depending on the type of image I was seeking. I did not intend and could not reproduce realistically what I had sensed in the original piece. The photosilkscreen image is by necessity an abstraction of the original in its reduction of a three dimensional shape to two. This is further compounded by its change of scale, negation of color to negative/positive and loss of detail. The silkscreen image becomes the given. It is a constant around which I attempted to reconstruct the original interplay of structure and material through its placement, choice of the size of the
cloth to be printed, dyeing and painting. The flat silk cloth became a base on which to express ideas. I did three or four printed silks for each of the four originals.

The two processes are quite different. Whereas the original is an assembling of different materials to form an idea/shape/image, the printed cloth reinterprets the idea using a given shape and image.

I was parallelling these two textile processes with collaged paper works and figure paintings (Xerox #1 and #2). The collaged works were made up of an assembling of different papers and fabrics. The figure paintings are a combination of black line drawing, acrylics and colored pencils within the given format of a rectangular piece of paper. Because the model would change the pose quickly, perhaps twenty-five times in a session, it afforded me the opportunity to experiment continuously with an underlying structure and a combination of different line and paint qualities. I used both paper processes, but particularly the figure drawings, as a more immediate realization of the textile construction and dyeing/printing/painting processes.

My original idea was to choose one of the printed silks and hang it as a pair with the original textile. I wanted to compare the shared pattern as it appeared in the two different processes. This necessitates an equal, although not the same, importance from each and commands a tension between the two pieces. I used the paper processes to this end. By combining ideas and materials in these works I could return to the more strict opposition of processes I sought to compare in the textile pieces.

Once I achieved this tension between the two textile works, the need for a pair disintegrated. I began to concentrate on a series of abstractions of the original textile. The drawings, in hand, were evolving a controlled interwoven sense of structure and materials as a result of the textile work.

The processes of construction and abstraction, the evolution of the
change in the original idea and the import of the works on paper are discussed in the following four chapters. An evaluation of the success of the pieces and subsequent work appears in the conclusion. A glossary follows to acquaint the reader with the techniques to which I make allusions.
Chapter One: Matière - The Inner Structure of Materials

I enjoy the tactile, physical quality of materials. Anni Albers describes it as:

matière ... surface appearance of material ... related to inner structure, as pliability, sponginess, brittleness, porousness, etc. ...

... being mainly a quality of appearance, is an aesthetic quality and therefore a medium of the artist, ...

... is mainly non-functional, non-utilitarian, and in that respect, like color, it cannot be experienced intellectually. It has to be approached just like color, non-analytically, receptively. It asks to be enjoyed and valued for no other reason than its intriguing performance of a play of surfaces. 1.

I began with a fiber hanging of handmade felt and handspun grey cashmere and black alpaca (Xerox #3).

Felt is a dense, non-woven fabric that is built up by the interlocking of fibers through heat and cold, moisture and pressure. It is almost exclusively a wool product because it is based on the ability of the scales of the wool fiber to adhere to each other. The fiber shrinks as the scales open when subjected to heat and close around each other when cold.

I made felt by sandwiching carded fleece between two pieces of cotton muslin, gently working it so as to not disturb the shape, adding soap, working the fibers down in a circular motion and pouring on alternating hot and cold water. I made numerous pieces of felt from different blends of wool. I enjoyed the physical activity of the process. Each piece, depending on the fibers, had a different shape, texture and color. They were raw material to me.

I chose three pieces of felt; one of grey cashmere, one of a

blend of grey cashmere and black alpaca and one of black alpaca. I wanted to build up a woven tapestry surface that would define a basically linear space over which the cloudlike dense shapes of the felt would float. The four vertical sections are evenly graded from grey cashmere to black alpaca. Their linear structure is broken up by the overlapping and protrusion of the felt over two vertical sections and by continuing the grey of the first panel into the second.

The felt is alternately placed in areas of the same and contrasting color. Its placement, coupled with its different densities, allows for the felt to recede into and project out from the tapestry. The interplay of the flat surface of the tapestry and the density of the felt, both of which are made from the same fiber, makes for the absorption and reflection of light.

I concentrated in the photography of the tapestry on the relationship of the felt pieces to each other and to the surface. I used halftone printing in an attempt to achieve greater detail. I was successful in that the photosilkscreen retained the surface gradation from grey to black and the blend of fibers in the middle piece of felt. The grey piece of felt though, became an outline of its shape and shadow and the black piece dropped out to form a solid band of color. Even so, I felt that I had still captured the essence of the piece; the blending of the two fibers, their differences as yarn or felt and the relationship of the felt pieces to each other and to the surface.

I dyed, printed and painted three pieces (Xerox #4, #5 and #6) with the tapestry imagery and chose one for the second panel. Each of the printed pieces was an attempt to abstract and rebuild the essence of the tapestry. The one chosen (Xerox #4) came closest to the original idea of a defined structure that contained a mass. The silk is dyed a deep red/rust color to assert the printed imagery. I drew a horizontal and a vertical line through the center of the silk and inverted the most detailed or heaviest element, the middle piece of felt, along the horizontal line.
I wanted the two prints to be slightly different. The deep red dye brings the purple of the one and the green of the other close in hue. The drawing emphasizes the prints' shapes; the irregularities caused by the stretching and pinning out of the cloth on the printing table. The curved dotted line on the left is an allusion to the manner in which the tapestry is hung; its lower edge is pinned up underneath allowing it to buckle forward. Among the other silks printed with this image, the green silk (Xerox #5) captured the massive quality of the tapestry but I did not consider the size of the cloth nor the placement of the imagery to be concise enough.

The original and the printed image are based on very different technical and material means. In the translation from three dimensions to two the reduction of the grey piece of felt to an outline of its shape and shadow and the dropping out of the black piece to form a solid band were necessary to compliment the visual activity of the shapes and textures of the blended fibers in the felt and woven surface. Hung as a pair (Xerox #8) one can make many comparisons of the structures and materials which form the shared pattern.

Whereas the felt tapestry is an assembling of different materials to build a three dimensional shape, the printed silk is the positioning of a double image within a given two dimensional format. The tapestry surface is made up of verticals that are broken up by shapes. The imagery of the printed silk is the inversion of a grainy textured shape along a horizontal line. The felt tapestry involves laborious carding and spinning to effect the even color change. The printing/dyeing process is more immediate. The cloth, dyed deep red, brings the purple and green of the two prints close in hue. The sparse freehand drawing emphasizes the imagery.

I include a figure drawing/painting (Xerox #8) done about the same time. The heavy layering and drippings of the paint have obliterated the drawing underneath. I wanted to work with the dyes in a more fluid manner. It is an indication of what was to come later.
Chapter Two: The Structure of Cloth

The second piece (Xerox #10) is a plain woven cloth of ikated natural brown hemp.

Ikat is a resist dyeing process. I wound the amount of hemp needed for the warp and weft around two sticks which were one yard apart. I wrapped every four inches of the fiber with plastic, secured the wrappings with string and immersed the fiber into a solution of bleach and water. The result was alternating four inch bands of brown and white fiber. I then rewrapped alternating six inch lengths of the fiber needed for the warp and dyed it together with half of the weft in indigo. The other half of the weft was left plain. As I put a two yard warp on the loom the resist areas became random and each warp thread changed color from blue to beige to white in six inches.

Balanced plain weave is made up of only the essential components, an even number of interlocking warp and weft threads. The ikated cloth is an abstraction of a system long known to weavers; Log Cabin. It is based on the idea that if either of two consistently alternating colors in the warp and weft (blue and beige/white in this case) is repeated, the threads will form horizontal and vertical patterns in the cloth. Because the ikated warp is random, i.e., the order of the warp threads is not consistently blue:beige/white, blue:beige/white, blue:blue, but changes color constantly, this piece is a less graphic realization of the Log Cabin system. There is a moiré effect as the horizontals and verticals cluster and disappear.

I had begun to think of cloth, with little or no embellishment, as simply a planar covering for the wall. I had woven and dyed two pieces of cloth to be printed on for the tapestry image. I printed one (Xerox #6) and was dissatisfied with it. The initial printing was a single image of the tapestry, then, a number of overlapping images. They were not needed on this surface. The fringe and varying size of the fibers already
provided shape. I left the second piece unprinted (Xerox #7). The act of weaving, the interlacement of threads to construct cloth, had become a process whole in itself for me. The decision making in the choice of fibers, their size, space and color relationships made it unnecessary to add further embellishment. The hemp piece was an attempt to convey this idea through structural means inherent in and inseparable from the craft of weaving, with careful planning before and during construction. It is a grid system broken down to a flow of lines. It has two presences; from a distance it is a loosely hung muted piece of cloth, close-up (Xerox #11) one can see isolated sections of the thread interlacement and the Log Cabin color effect. I wanted to capture both the large and small sense of the cloth and photographed two of the Log Cabin areas with the cloth hung both loosely and taut. I made two large halftone positive screens and two small line photography negative screens. The halftone images reinforced the distortion of the pattern as seen in the loosely hung cloth. The shadows caused much of the pattern to print solid. The line photography negatives isolated the individual dots of the pattern illustrating the close-up graphic aspect of the weave.

I tie-dyed, bleached and printed a combination of the images on four silks (Xerox #12, #13, #14 and #15) and chose one for the second panel (Xerox #12). It was the most successful for it spoke of the quality that I had sought to achieve in the original; an exploitation of the medium. The pattern is printed along the outside movement of the tie-dyed areas. The ink was too liquidy and it bled out in the large positive images into the background. The negative screens, more isolated dots, retained their graphic quality. The center space was left, a depth of muted color. The heavy splattering of dye alternately sets off the prints' movement and diffuses it into the background.

Although each of the other three printed silks expresses a different aspect of the woven cloth; the potential of its graphic surface (Xerox #13), the isolation of individual threads (Xerox #14) and the alternately dominant and recessive pattern (Xerox #15), the print chosen combined these
characteristics and reinterpreted therefore the essence of the original.

Both pieces, the hemp cloth and the silk print, are about textile processes; how cloth is made. Hung together (Xerox #16) one can compare the differing structural and material means which create a tension between the two pieces.

The hemp cloth is made up of fibers which have been wrapped, bleached, wrapped again and dyed. The muted colored threads diffuse and leave only isolated areas of the embellishment or pattern. The loose fringe allows the lines to continue beyond the confines of the length by width dimensions of the actual piece of cloth. The printed silk is tie-dyed and bleached to become muted. The printing, negating the idea of a systematic confined registry, emphasizes the flow of color in the given piece of cloth.

Two figure drawings (Xerox #17 and #18), done about the same time as the weaving and about four weeks before the printing of the silk, parallel this symbiotic attitude. The dense and open areas of paint are placed with a sensitivity to the drawing of the figure and its relationship to the whole page. The discipline necessary in the planning of the woven pieces began to show in the control of line and paint in the drawings.
Chapter Three: Structure of a Room

I felt that I had dealt with the essence of cloth construction; both woven and printed. I wanted to apply this understanding to the readymade materials that I touched around me. The third pieces define the structure of a room that I inhabit. It had been extremely cold all winter and my windows and glass doors had been covered with polyethylene allowing in only a diffused light. I began to see the coverings as cloth; structures that were wrapped with plastic.

I stretched varying layers of polyethylene over kiln dried rough wood to make rectangular and square structures. I placed them at right angles to each other and against the wall to emphasize the relationship of corner to corner, wall to floor and openings to enclosures of a space I lived in, a room of my apartment. I approached these structures in the same way as I did the two preceding pieces; I wanted to evoke a tactile sense through an interplay of structure and materials.

I photographed the structures and printed them onto tie-dyed silk (Xerox #19). I was concerned with the angles and reflection of light formed by the materials, and used therefore line photography. Detail dropped out to form strong negative and positive areas. I made black and white photographs of the structures. They became more important than the actual constructions for I could further abstract the pieces by controlling the developing times and combining the photographs. The printed images were almost obliterated by the handpainting. Just as I had abstracted the idea of cloth construction towards coverings, so the silkscreened imagery became even less an allusion to the original pieces. As a result, the original idea of strict opposition of textile processes was also changing. The prints shown, two out of six made, are, in fact, trial run prints. They satisfied a need to create a situation, record and abstract it. They went no further.
Chapter Four: Structure of Hanging Silk

At the same time as the room structure prints I did four cyanotype blue prints on silk (Xerox #20). I made a drawing of an irregular grid system and photographed it in a Robertson Process camera. I changed the percentage of enlargement and made many negative and positive Kodaliths of the same drawing but with different size grids (1", 3/4"). I applied the chemicals and laid opaque paper and the Kodaliths over the silk. The opaque paper, solid black areas of the Kodaliths and crinkling of the silk left open white areas. As the sizes and shapes of the brushes became important in the drawings (Xerox #21), I began to incorporate this single independent brushstroke into the painting of the silks. Both works were done about the same time.

These silks are abstractions of the idea of weaving; grid systems which are distorted and controlled by a human gesture. The four pieces are small in scale and fragile in material and lifespan (the cyanotype blue will fade after continuous washing and exposure to light). I had a feeling for the limits of materials. Most of the early figure drawings were not done on the best quality paper, rather, light newsprint. The drawings from two years ago are already changing color.

The work in the first three chapters entailed construction, abstraction and multiple pieces of printed cloth. I chose one print from each of the three or four done for each original to hang as a pair. The impetus in these last pieces was to concentrate on the printed abstractions of the original; a series of works each dealing with a similar idea but treated in a different way. My concern for the structure of cloth included the silk interpretations. I wanted to exploit the whiteness and thinness of this particular silk. I hung the silks close together with T-pins as if to create a whole piece of cloth. They each move with the air current.
Conclusion

Throughout this thesis work there is a consistent attempt to define existing space through tactile means; the tapestry and its print defined a linear space which contained a mass, the hemp ikat and print defined a segment of an ongoing space, the room structures and prints defined the constructed space of a room and the four cyanotype blue silks the effect of an air current on hanging material.

Each of the sets manifests a different aspect of tactile sensibility; the interplay of structure and materials. My sense of tactile sensibility effected a desire to create the very fibers used in the tapestry, to manipulate commercial fibers in the woven hemp cloth, to act upon the fibrous quality of materials in the environment as seen in the wood and polyethylene structures and to combine the fragile existences of the cyanotype process and a thin silk.

Each set isolated and abstracted this tactile sense through the subsequent printing, dyeing and painting of the silks. I wanted to convey the essence of the original, yet also exploit the potential of the dyes and inks. These ideas found form in the drawing which centers and concentrates the weight in the tapestry printed silk, the following of the movement of the tie-dyed areas in the ikat printed silk and the persistent human gesture in the painting and printed imagery of the cyanotype blues and room structure silks.

As processes, the original and printed silk, are quite different. The original assembling of different materials to form a three dimensional idea/shape/image is reinterpreted onto a given two dimensional format. To hang them as a pair necessitates an equal, although not the same, importance. I stretched and pinned the woven cloth and silks onto dowel sticks to minimize the difference in format and to emphasize the comparison of the shared pattern. The nature and handling of the materials involved causes
Each process to have its limitations. Of the felt tapestry and its print the tapestry conveys better the sense of weight and mass. Its shape is compact and there is no extra material. The lower edge is pinned up onto the wall and allows the felt to bend on the surface. This quality is lost in the printed cloth for the image seems superimposed and weak within the extra silk. The hemp ikat and silk work equally well with each other. Their insistence on how cloth is made, woven and printed, and similar size allows for a tension between a muted colored cloth based on only its necessary elements, an even interlacement of warp and weft, and the layering of dye, print and paint in the silk. Once having achieved this tension the necessity of a pair disintegrated. The imagery of the room structure silks is almost obliterated. The abstraction achieved in the different exposure times and combination of the photographs cancelled out the need for the original structures. The drawings were not needed to accompany the cyanotypes. The emphasis was on the four varying treatments of a similar idea.

Because of its immediate nature the works on paper usually anticipated the more deliberated textile processes. If the figure is taken as the underlying structure the drawings/paintings change from a dual attempt in the line and color to delineate the body (Xerox #1), to a negation of the underlying structure (Xerox #9), to paint applied in accord with the structure (Xerox #17 and #18), to line and paint that work independently of each other (Xerox #21).

This past four months' work in textiles; the desire to construct an image, isolate the essence and treat it in a different or number of ways and the processes and materials I chose to carry out the work has ultimately influenced the works on paper. In the three weeks between the hanging of the thesis show and this final writing I have done dozens of collaged paper works and figure drawings/paintings. The success of this last body of work (Xerox #22, #23, #24 and #25), drawings done with black pencil, acrylics, colored pencils and wax paper and the combination of two figures on a page, is the result of this intense involvement with structures and materials and the tactile sense it has honed.
Glossary

Cyanotype Blue

Solution A 50 grams Ferric Ammonium Citrate
250 cc. distilled water

Solution B 35 grams Potassium Ferricyanide
250 cc. distilled water

Mix equal parts of Solutions A and B. Keep solutions separate until you are ready to use them. Coat the fabric by either soaking it in the solution or by applying it with a brush. Gently squeeze the excess liquid from the material. Hang the sensitized fabric to dry in subdued light. Expose using a Kodalith negative or object under ultra-violet light (sunlight, carbon arc, quartz, sunlamp etc.). Make a test strip to determine the correct time. Longer exposures give darker shades of blue. Wash in running water until all of the green solution is gone. Hang to dry. Note: I found in working with fabrics and a carbon arc lamp the exposure time to be thirty minutes.

Dyes and Inks:

1. All dying of the fabrics (except the hemp cloth, Xerox #8 and #9) was done with Cushing Dyes, a direct dye. It can be obtained through:

   Cushing's Perfection Dyes
   W. Cushing and Co.
   Kennebunkport, Maine 04046

2. Indigo (indigofera tinctoria): Indigo is one of the oldest and most important natural dyestuffs. The process for dyeing with indigo is as follows:

   Stock Solution Mixture

   A. \[ \frac{1}{4} \text{ cup warm water} \]
   3 teaspoons sodium hydrosulfite
   1 tablespoon Indigo paste
Mix the above in a beaker. Stir gently so that there are no bubbles. Set in a pan of hot water for fifteen minutes.

B. \( \frac{1}{2} \) cup of warm water
   1 tablespoon Lye (caustic soda or sodium hydroxide) Mix together.

Mix A and B together in one beaker. Add 1 tablespoon uniodized salt. Fill a saucepan with water. Place the beaker of the indigo-hydrosulfite-lye solution in it. Heat slowly to 120 degrees Fahrenheit. 140 degrees will destroy the dye.

When the temperature reaches 120 degrees remove the beaker from the heat and let it stand for a half to one hour. When cool, the solution should read clear greenish-yellow with a coppery scum over the surface.

If the solution is not clear greenish-yellow, or the stock solution feels slimy or it is blue or has blue specks, you can correct the solution by adding \( \frac{1}{2} \) a teaspoon of hydro-sulfite, at intervals of ten minutes.

For each four ounces of material to be dyed add:

- 1 tablespoon for light blue of the stock solution to
- 2 tablespoons for medium blue a pot of water covering
- 3 tablespoons for dark blue the material to be dyed

Heat, but not above 120 degrees. Lift the material from the pot. Air the material for ten minutes so that the dye does not collect in one spot. Rotate.

Re-dip if the blue color is not strong enough. Several dippings will make the color color fast.

Soak the material in a solution of warm water and two tablespoons of vinegar for ten minutes. This will neutralize the alkali of the lye. Then wash with soap, rinse and dry in a low light area.

3. All printing of the fabrics (except Xerox #5 and #10) was done with Procion Dyes, a fiber reactive dye which can be obtained from:

Pylam Dyes
95-10 218 Street
Queens Village, New York 11429
The formula for printing with Procion Dyes follows:

<table>
<thead>
<tr>
<th></th>
<th>Grains</th>
<th>Grams</th>
<th>Kitchen Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calgon</td>
<td>75</td>
<td>4.5</td>
<td>1 teaspoon</td>
</tr>
<tr>
<td>Halltex RRS-H</td>
<td>300</td>
<td>18.0</td>
<td>4 teaspoons</td>
</tr>
<tr>
<td>Urea</td>
<td>200</td>
<td>14.0</td>
<td>10 tablespoons</td>
</tr>
<tr>
<td>Nacan or Stephanex</td>
<td>60</td>
<td>4.0</td>
<td>1 teaspoon</td>
</tr>
</tbody>
</table>

Add one teaspoon per cup of dye matter of sodium bicarbonate and washing soda when you are ready to print.

Let the printed cloth dry for 24 hours. Steam set. Wash in hot water. Press.

4. Inmont Inks (used in Xerox #5 and #10) are an air-set textile ink which can be obtained through:

Inmont Corporation
Hawthorne, New Jersey 07506

The formula for printing with Inmont Inks is:

Mix one part Inmont Ink to ten parts Inmont Carrier. Add one teaspoon of Inmont Fixative per cup of printing matter. Air-set. Wash in warm water. Press.

Photographic Processes:

1. Kodalith: a general term for a high contrast film. It can also be called lith film, orthochromatic film etc.

2. Halftone Photography: Only one film thickness or ink density can be printed at a time. Halftone printing is a technique which breaks up the continuous image (copy that consists of a gradual change from white areas to black areas with tones of grey) into solid small printing areas (halftone dots). The size of the dot in relationship to the white space around the dot determines the tone value. It is controlled with two exposures; the main for the highlight areas and the flash for the shadow areas. This allows for greater detail in reproducing printed matter. A considerable amount of expertise is needed for the calibration of the two exposures. The work is done on a Robertson Process camera with lith film, a grey halftone contact screen and a black and white photograph. The developing is done with 3M Liquid Lith Developer (equal parts of A and B).

3. Line Photography: a technique in which detail drops out as the continuous tone is reduced to opaque or transparent areas. This work can be done in a standard darkroom with a black and white negative,
enlarger, high contrast film and Kodalith A and B (equal parts) for developing.

All of these films and developers can be obtained through:

Eastman Kodak Company
Rochester, New York 14650

Silkscreen Processes:

Build a wood frame with four or eight overlapped pieces of wood. Stretch dynex or silk silkscreen material over it tautly and secure with staples. As per the directions on the bottle mix ammonium bichromate with Direct Emulsion 333 which can be obtained from:

Advance Excello Color and Chemical Manufacturing Division
Chicago, Illinois

or with Tetko Bichromate Emulsion 110B from:

Precision Woven Screening Media
420 Saw Mill River Road
Elmsford, New York 10523

Apply a thin coating of this mixture to both sides of the screen material in subdued light. Scrape off the excess. Let dry. Expose to a carbon arc lamp for three minutes with a Kodalith positive. Rinse screen lightly with hot water. Apply water pressure to open up the printing areas.

Tie-Dye: to manipulate and cause resist areas in a piece of cloth by folding, wrapping, twisting or binding with thread. Immerse in a dye-pot. The bound areas will resist the dye. Wash till the water runs clear.
Selected Bibliography


